Permeability reduction occurs via salt precipitation following the formulation of Pruess and Garcia (2002) and Verma and Pruess (1988). The permeability reduction model uses a tube-in-series model to represent permeability changes:

the *Hydraulic Properties Card* (Sections 4.2.9 and B.9) and can be specified with units of intrinsic permeability (e.g., m^2, Darcy, mD) or with units of hydraulic conductivity (e.g., m/day, cm/hr). If units of hydraulic conductivity are specified, the intrinsic permeability is computed assuming that the hydraulic conductivity was specified for the density and viscosity of water at 25°C and 1 atm. Permeability reduction occurs via salt precipitation following the formulation of Pruess and Garcia (2002) and Verma and Pruess (1988). The permeability reduction model uses a tube-in-series model to represent permeability changes:

$$\frac{k}{k_0} = \theta^2 \left[\frac{1 - f + \left(\frac{f}{\omega^2} \right)}{\left(1 - f + f \left(\frac{\theta}{\theta + \omega - 1} \right) \right)^2} \right]$$

$$\theta = \frac{1 - s_s - \phi_r}{1 - \phi_r}; \ \omega = 1 + \frac{\left(\frac{1}{f} \right)}{\left(\frac{1}{\phi_r} - 1 \right)} \tag{2.69}$$

where, ϕ_r denotes the fraction of original porosity at which permeability goes to zero and f is the fractional length of the pore body. A plot of the reduction in permeability ratio versus salt saturation for ϕ_r of 0.8, 0.7, and 0.6, and f of 0.8 and 0.5 is shown in Figure 2.11.

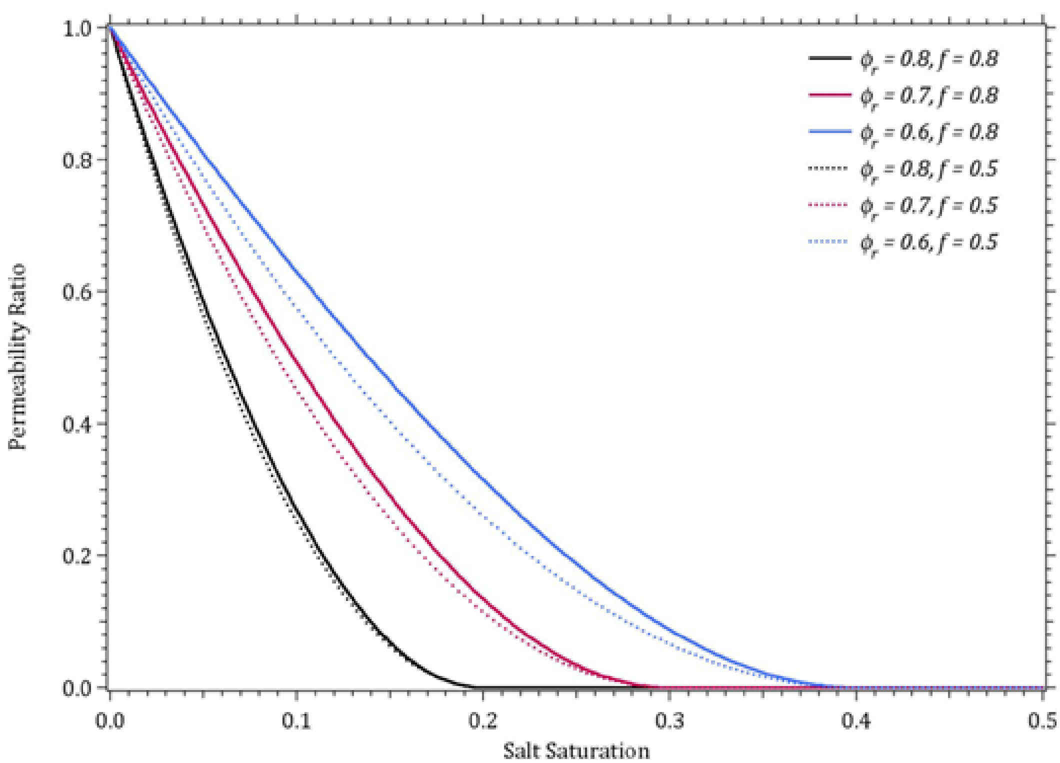

Figure 2.11. Permeability Reduction with Salt Precipitation